

NEWSLINE

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Tooling up for expanded detection

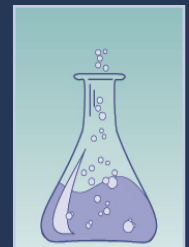
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Miller says past paves way to promising future

By Don Johnston
Newsline staff writer

Under the theme of connecting to the future by building on past and current successes, Director George Miller delivered an upbeat assessment of the Laboratory’s prospects for the future in an all-hands address Monday.

Miller unveiled his A List for 2007, reviewed the core values vital to the Laboratory’s continued programmatic and operational success and fielded questions from employees.

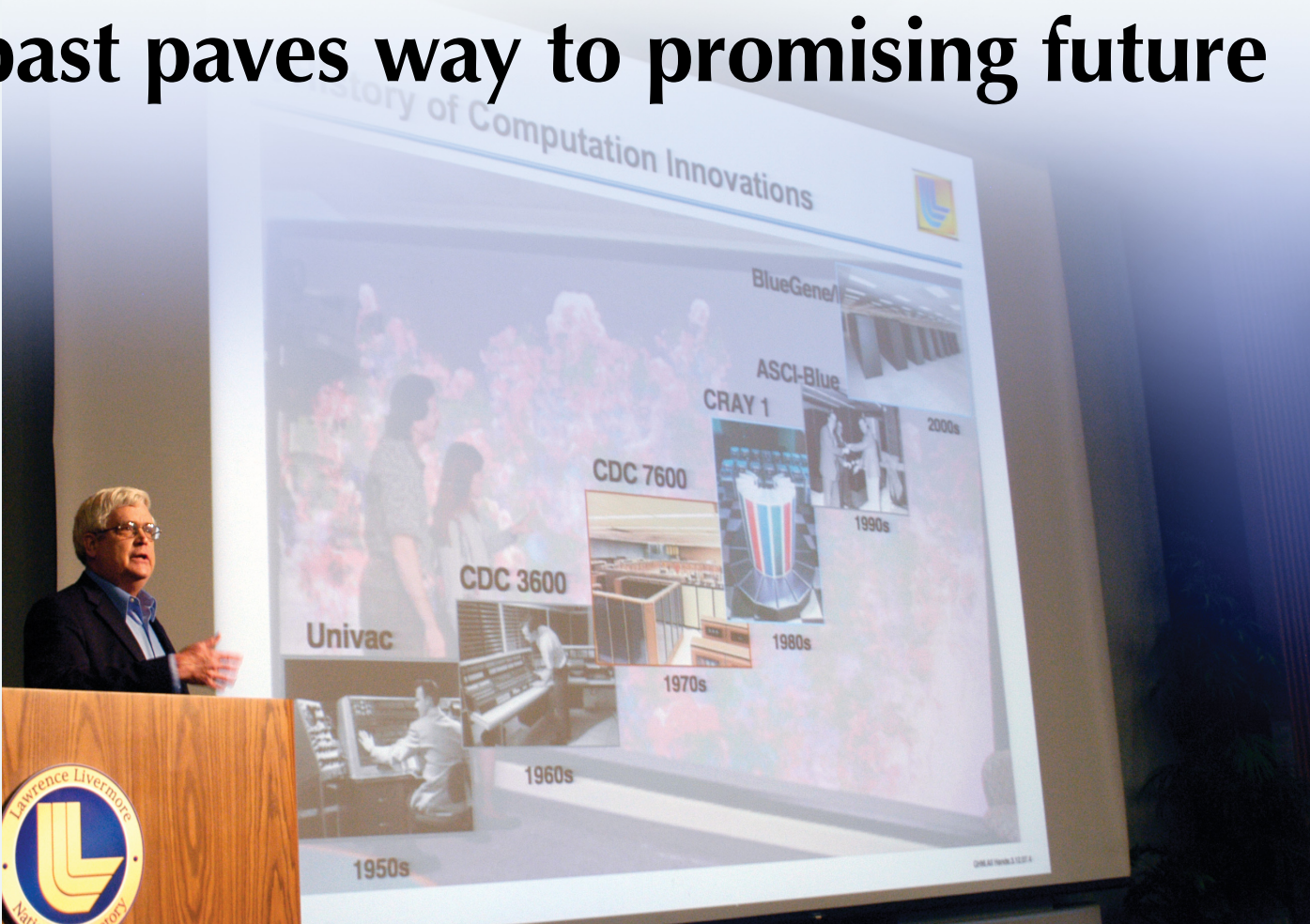
He opened his presentation with a slide show tribute to the Laboratory’s many scientific, technical and operational accomplishments since October 2006. Lauding the Laboratory team that recently won the Reliable Replacement Warhead (RRW) design competition, he said, “This represents the continuity of the Laboratory; the continuation of the successes of the past and a connection to our future.”

Miller went on to describe many of the historical scientific and programmatic accomplishments since the Laboratory’s founding in 1952. “This Laboratory, for all intents and purposes, invented the modern weapons stockpile,” he said, citing groundbreaking LLNL work in laser fusion, computation, nonproliferation and early research in magnetic fusion.

“We are in many respects the envy of other laboratories; our procurement system; our property management system; our facility management system; all of these are recognized throughout the complex as among the very best,” Miller said.

“How did we get here? What’s so special about this Laboratory?” he said. “I think first of all it’s a sense of public service; we’re here because this is the best way we can help our country. It’s because we have a passion for what we do; it’s because we have a strong belief in integrity and objectivity; it’s because we have an extraordinary sense of teamwork and camaraderie; and we have had an organizational agility that has allowed the Laboratory to remake itself once a decade since its founding by Ernest Lawrence and Edward Teller in 1952.

“The world around us is changing rapidly and we’re changing with it. I see this Laboratory as an island of stability where we’re retaining the things that are important and preserving our key values



Bob HIRSCHFELD/NEWSLINE

George Miller reviews some of the Laboratory’s past successes.

and changing all the rest,” Miller said.

“This Laboratory, in my view, has a very bright future that is a continuation of the past and a bridge to the future. We’re positioned to succeed.

“We played a major role in inventing stockpile stewardship and right now we’re playing a major role in developing Complex 2030,” Miller added. “We played a major role in bringing to the attention of the country the problems of proliferation and terrorism. We are establishing the effects of human activity on the environment and offering solutions. We continue to play a major role in establishing high-energy density physics as a great new field of endeavor.”

Contract transition

Displaying a timeline showing “our best notion of how transition is going to evolve,” Miller said the decision on the new contractor should be announced within the next two months. “I know there’s a lot of pent up emotion on this issue. There also is a misconception that once a new contractor is announced all your questions will be answered,” he said. “Unfortunately, that is not how it will happen.”

Miller explained that once a new contractor is selected there will be negotiations between the new limited liability corporation and DOE/NNSA “before the transition can actually begin.”

Reviewing how transition took place at Los Alamos, it was a month after the award announcement before even a high-level organizational structure was unveiled, two months before employees had a proposed benefits

package on which to comment, and even later before decisions on employment offer letters had to be made, according to Miller. “I think it’s important we normalize our expectations because this is how the transition is likely to unfold for us over the next six to seven months.

“It’s also important to remember that between now and the first of October the existing organization and the existing management team will be running the Laboratory,” he said. “We have a lot of important work to do for this country and it’s important we do that work safely and securely.”

Miller offered his perspective on the conditions that led up to the competition for the contract to manage the DOE/NNSA laboratories. “Livermore and most of the other national laboratories were founded in the refining fires of World War II and the Cold War. There was a sense of ‘mutuality.’ Former Director Johnny Foster at one time said that the federal government would send us the money and resources we wanted, if we would just help them win the war. That relationship with the federal government lasted until the waning days of the Cold War.”

The end of nuclear testing in 1992 brought a major change, Miller explained. “The final arbiter of advice we gave to the government in nuclear weapons activities was no longer available. That changed the nature of the relationship between the Lab and the federal government. There’s been the inexorable evolution of major societal forces. In many respects, the government is trying to provide incentives for behavior through contractual means.

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A list 2007 We value

Personally commit to:

- Protect the security of our nation
- Work with the highest integrity
- Maintain and enhance our collective safety and security
- Provide the highest quality work to our customers and ourselves
- Communicate openly, fully, effectively, respectfully and frequently
- Ensure a supportive and collaborative workplace

Collectively commit to:

- Foster stronger customer relationships by meeting our commitments and exceeding our customers’ expectations
 - Deliver RRW-1 and develop strategies for a responsive infrastructure and a sustainable enterprise for the future
 - Complete the NIF Project, achieve the goal of ignition experiments in 2010, and develop strategies for the Laboratory’s high-energy density future
 - Create insights, technologies and operational capabilities to anticipate and counter proliferation and catastrophic terrorism
 - Apply Purple and BG/L to grand challenges and execute a strategy for sustained pre-eminence in high-performance computing
 - Exploit Laboratory capabilities and develop partnerships to support international priorities in energy and environmental challenges
- Invest in science and technology to strengthen the foundation for current and future Laboratory missions
- Smoothly and effectively operate the Laboratory, systematically enhance operational efficiencies and meet compliance requirements
- Embrace our future by working together effectively, safely and securely to transition our Laboratory, our values, our workforce, and our programs to the new management and leadership team

Passion for Mission

Integrity and responsible stewardship of the public trust

Taking personal and collective responsibility for safety and security

Simultaneous excellence in science & technology, operations, and business practices

Balancing innovation with disciplined execution

Teamwork while preserving individual initiative

Intense competition of ideas with respect for individuals

Treating each other with dignity

A high-quality, motivated workforce with diverse ideas, skills, and backgrounds

Rewarding and recognizing performance

Commitment to the collective success of the Laboratory

ALL HANDS, from page 2

They believe that commercial practices can help the laboratories and plants be better.

“In my view this is part of a much bigger transition that’s going on at all the national laboratories and that’s going on throughout the defense industry. Even though it may seem like something that has suddenly been thrust on us; if you look back 10 years, the changes we have seen seem almost inevitable.

“Part of our history has been to embrace change, use it to our advantage and make changes that are important to our future,” Miller said, adding that at such times he often thinks of the quote: “A crisis is a terrible opportunity to waste.”

“Change also is traumatic and disrupts our social network; it can lead to worry, anger, sadness and lead to seeking blame. And it can lead to a sense of guilt. We ask ourselves, ‘What could I have done to prevent this?’ Many of us experience these emotions. I know

I’ve felt these emotions and many more,” he said. “But the thought I keep coming back to is that we can both get through this and improve the Laboratory and, in the process, better position ourselves for the future.”

According to Miller, “We’ve done this before; we’ve done harder things than this and we’ve succeeded. What’s important is our incredible sense of teamwork. We’re all in this together. What’s important is that we care about each other; we help each other; we have empathy and compassion for our friends and co-workers. What is important is our workforce, our sense of values and our sense of purpose.”

Values and A List

Miller reviewed the Laboratory values that have been developed over time and “which remain important as a reflection of who we are.” Miller stressed the values will “continue to be our touchstones” (See accompanying list).

The director then unveiled his 2007 A List, introduced in two parts; the first , a personal

commitment reflecting some of the Lab’s values; and the second, a more familiar listing of specific programmatic and operational objectives. “It’s essential we remain focused on executing these missions and these responsibilities.”

Miller concluded his presentation with a note on safety, displaying a poster produced by the Laboratory’s Grass Roots Safety Committee. He urged employees to be particularly aware of safety and to discuss safety issues in these times of stress.

In summarizing his message, Miller said, “The last time I talked to you about safety I referred to two important characteristics of high performance teams — like Seal Teams and Delta Force — they’re passionate about their mission and they take care of each other. That’s my vision for our Laboratory.

“This is my theme,” Miller concluded with great emotion, “Continuity of purpose, continuity of values and working with the greatest team of people I’ve ever known.”

One machine for detecting explosives, chemicals, bio agents

By Stephen Wampler
Newsline staff writer

Airplane passengers and baggage might be screened one day by a machine under development at the Laboratory that can detect explosive, chemical and biological agents all at the same time.

A team of LLNL researchers has conceptually proven that a three-in-one machine, or “universal point detection system,” can be achieved, said George Farquar, a postdoctoral fellow and physical chemist at the Lab’s Glenn T. Seaborg Institute, which is part of the Chemistry, Materials and Life Sciences directorate.

The team’s latest advance, using its mass spectrometry system to detect the presence of minuscule particles of explosives, is described in the March 1 edition of *Analytical Chemistry*, a semi-monthly journal published by the American Chemical Society.

“We have found we can potentially detect an incredibly small quantity of material, as small as one dust-speck-sized particle weighing one trillionth of a gram, on an individual’s clothing or baggage,” Farquar said. “This is important because if a person handles explosives they are likely to have some remaining residue.”

Using a system they call Single-Particle Aerosol Mass Spectrometry, or SPAMS, the Livermore scientists already have developed and tested the technology for detecting chemical and biological agents.

The new research expands SPAMS’ capabilities to include several types of explosives that have been used worldwide in improvised explosive devices and other terrorist attacks.

“SPAMS is a sensitive, specific, potential option for airport and baggage screening,” Farquar said. “The ability of the SPAMS technology to determine the identity of a single particle could be a valuable asset when the target analyte is dangerous in small quantities or has no legal reason for being present in an environment.”

On the cover: George Farquar and Audrey Martin are two members of the team that has developed the use of the Single-Particle Aerosol Mass Spectrometry (SPAMS) system for detecting the presence of minuscule particles of explosives. They are shown operating the SPAMS system, which can also detect biological and chemical agents.



JACQUELINE MCBRIDE/NEWSLINE



JACQUELINE MCBRIDE/NEWSLINE

Among the members of the team working on the Single-Particle Aerosol Mass Spectrometry system are left to right: Gary Armstrong, George Farquar, Tom McCarville, Kristl Adams, Paul Steele, Vincent Riot, Keith Coffee (background), David Fergenson, Eric Gard, Audrey Martin and Sue Martin.

The team conducted its explosives tests under laboratory conditions at LLNL last summer.

“The tests went well. They show the potential to identify explosives in a field setting,” Farquar said.

Besides Farquar, other LLNL researchers on the explosives detection team included the paper’s lead author, Audrey Martin, an LLNL chemist and Michigan State University Ph.D. student, chemists Eric Gard and David Fergenson, and physicist Matthias Frank.

Other members of the overall SPAMS team are chemists Keith Coffee, Henry Benner, Erica McJimpsey and former LLNL employee Herb Tobias; biologist Sue Martin; biophysicist Kristl Adams; engineers Bruce Woods, Tom McCarville and Vincent Riot; and physicists Paul Steele, Mike Bogan and Urs Rohner.

“We work with an incredibly talented group of scientists, engineers and administrative staff that allows this high-quality work to be accomplished,” Farquar said. “As a young scientist, this is what makes the Laboratory an exciting place to work.”

The early history of the three-in-one detection system started at LLNL in 1999 with the development of what is called the Bioaerosol Mass Spectrometry (BAMS) system. This system can detect airborne biological pathogens and sound a warning in less than one minute.

In late 2005, Livermore researchers started work to expand the capabilities of BAMS to include chemicals and

explosives, setting the stage for the new machine now called SPAMS.

“While this instrument started as a biological detector, we saw that it had the potential to do much more by detecting other threat agents, such as chemicals and explosives,” Farquar said.

The biological detection system underwent field testing for background studies at San Francisco International Airport in late 2005. Farquar describes the biological detection technology “as very solid.”

In late 2005, the biological system underwent testing for several biological “surrogates” at the Applied Physics Laboratory at Johns Hopkins University. A second round of tests – with smaller releases and seven days of autonomous sampling – is planned for later this month.

Initial studies to test the performance of SPAMS with four chemical “simulants” were undertaken in 2006.

Future plans for SPAMS include a field test at a large public facility in the United States later this year, upgrading the technology for removing particles from luggage and clothing, and adding the capability of detecting narcotics, Farquar said.

Research funds to add the capabilities of detecting explosives and chemicals have been provided by the Defense Advanced Research Projects Agency, the U.S. Department of Homeland Security and LLNL’s Glenn T. Seaborg Institute.

DHS Fellow explores expansion of capabilities for detection

By Stephen Wampler
Newsline staff writer

While Audrey Martin is helping develop a technology to protect against terrorist attacks, she’s simultaneously working on her Ph.D. dissertation.

A chemistry student at Michigan State University, Martin is conducting her doctoral research project far from the East Lansing, Mich. school campus, at LLNL.

Last November, the 25-year-old researcher was beginning her thesis work at MSU on the electrochemical monitoring of heavy metals in water supplies when Lab chemist George Farquar called her with an offer.

Farquar asked if Martin, who had worked at LLNL for 15 weeks last summer as a Department of Homeland Security (DHS) Fellow, would like to return to the Laboratory as a student employee.

“She had done such a great job that we wanted to have her back, so we recruited her to do her Ph.D. in chemistry for MSU here,” Farquar said.

Martin resumed her work at LLNL in February, conducting research on a detection machine that screens for biological, chemical and explosive agents all at the same time. She becomes the first DHS Scholar or Fellow Program intern hired into the Laboratory as a full-time student employee.

“This is fabulous,” said Barry Goldman, who oversees the DHS internship program at LLNL. “This DHS program is intended to expand student awareness of DHS programs and opportunities at the DHS labs. This is an early sign of success.”

As Martin considered the LLNL job offer, provided through the Physics and Advanced Technologies Directorate, it didn’t seem practical at first to change her Ph.D. research project, leave MSU and move out to California.

“It’s something of a big change to move across the country. But I thought of where I wanted to be in 10 or 20 years. I concluded the research project and opportunities here would more closely meet my career goals,” she added.

Without the DHS Scholars and Fellows Program, Martin said she would not have had the chance to come to LLNL as an intern or the freedom to pursue a different area of study.

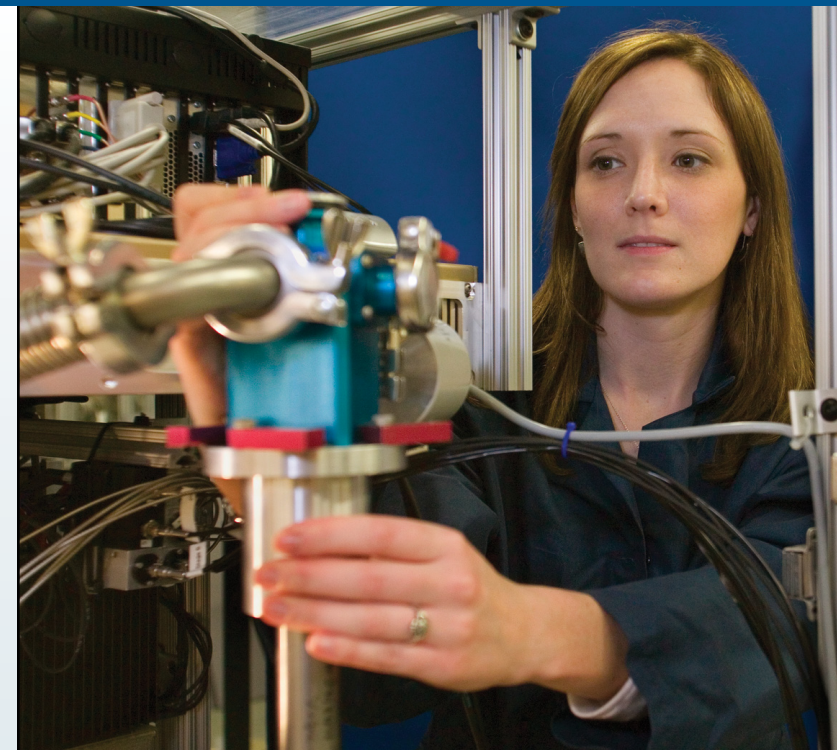
“It (the DHS program) definitely provides the chance to see what research is happening in the field and what career options there are for homeland security.”

During Martin’s late May through early September LLNL internship, she conducted research and served as the lead author for a paper that appeared March 1 in the journal *Analytical Chemistry*.

Her paper, written with four LLNL co-authors, describes the expansion of capabilities for the Single-Particle Aerosol Mass Spectrometry (SPAMS) machine to include not only the detection of biological and chemical agents, but explosives.

Martin’s paper doubled as part of her thesis for a master’s degree in forensic science that she received in December through the MSU School of Criminal Justice. She collected data for laboratory tests for explosives and chemicals, analyzed the data and wrote the paper.

“My internship went very well. It was a great group for me to work with because people took the time to explain things and gave me the freedom to do hands-on work and follow my own ideas,”



JACQUELINE MCBRIDE/NEWSLINE

Audrey Martin adjusts the lens stack of SPAMS. Martin, who worked at LLNL for 15 weeks last summer as a Department of Homeland Security Fellow, is the first DHS intern hired into the Laboratory as a full-time student employee.

she said.

Martin calls the DHS Scholars and Fellow Program something that has been “great” for her education and future scientific career.

“Having the opportunity to go to LLNL to explore a new research area was helpful. This internship gave me access to equipment and facilities, as well as research projects, that wouldn’t have been available at the university level.”

Under the DHS program, students receive the opportunity to explore research and career options in homeland security. Undergraduates, who are called scholars, receive a monthly stipend of \$1,000 for nine months per year, while graduate students, who are fellows, are awarded a \$2,300 per month stipend year round. Both scholars and fellows have their tuition and fees paid by DHS.

Since the DHS internship program began, LLNL has attracted a burgeoning number of the approximately 100 annual interns, with 15 in 2004, 24 in 2005 and 34 last summer, when Martin served her internship. Another 34 interns are expected to work at LLNL this summer.

“In my view, Audrey’s experience and subsequent hiring is a real success story for the DHS summer program,” said Farquar, who acts as her academic adviser, working with physicist Matthias Frank, who is her supervisor.

Farquar believes it is a “real benefit” for the Laboratory and its research programs to have students. “Not only do they inject new ideas, but it is also important for us as scientists to train the next generation.”

Martin, who was tapped to be a DHS fellow in 2004, worked for 12 weeks during the summer of 2005 at Sandia National Laboratories, California, on a microfluidics project for biological detection. Her time at Sandia was “great” and she learned much, she says.

“When I came over to LLNL to participate in tours and other activities, I saw some research work that was more closely aligned with my career goals,” she said.

Since DHS allows second internships, if requested, Martin asked to come to LLNL last summer – and now has become a full-time student employee.

“This is an interesting time to get into the field of homeland security. I appreciate the chance to perform science that has a public service component and can benefit the safety and security of society.”

i.want ads

Due to the high quantity of ads and space limitations, these want ads have been abbreviated.

For the complete ad listings, refer to the internal Website: <http://www-r.llnl.gov/pao/news/wantads.html> or for the latest pdf download and retiree information, see the external Website: <http://www.llnl.gov/pao/employee/>.

Date of ads: Approx. March 6 to 13. Ads now appear on the Web for seven days.

AUTOMOBILES
1984 Honda Accord hatchback. \$1,000. 330,000 miles. 5-speed manual. Runs well, but needs work. as is. 925-447-3432
1994 Jaguar XJS Convertible. \$17,000. Burgundy w/Champagne top and interior. 59K miles, 4.0L I6, Auto. RWD, Call 209-833-8105 or 510-812-6395
1997 Ford Explorer. \$5,960. 4DR, 4x4, excellent condition, 125K. 925-846-4374
1999 Honda Civic. \$9,999 OBO. Electron Blue Civic Si, only 78k miles, excellent condition. 925-518-1129.
1999 Plymouth Grand Voyager SE. \$6,100. Great condition. Cranberry exterior w/ gray interior. 82,000 miles. 209-833-9141
2000 Jeep Grand Cherokee Ltd. 4x4. \$7,900. 2000. 119,000 miles. Fantastic condition 925-200-0429
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2001 Lexus LS 430. \$28K OBO. 59K mi, Midnight blue, Sports Suspension package, 925-639-3531
2001 Lincoln LS V8. \$14,000. Original Owner, Excellent Condition, 510-305-8829
2003 Honda Element. \$11,500. Navy Blue; 96,000 mi; 4-Cyl. 2.4L VTEC; 925-736-7507
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2003 Toyota 4Runner SR5. \$19,500 OBO. Exterior: Silver. Interior: Gray (cloth); Mileage: 53,000, V6, Automatic, 4WD. 510-792-1538
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Sport Road Bike. \$150. Univega Nuovo Sport road bike. 925-245-1414
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Inflatable Alligator Pedal Boat – New. \$15.00. 925-648-0671
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Atari 2600. \$60. 11 game cartridges. 925-447-3432
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Creative Zen Vision 30 GB - 3.7" SharpPix Screen \$300. 650-714-1612
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Kirtland Washer & Dryer. \$300 . White, full size, top load, 209-862-1567 or 925-858-5981.

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Memory Foam Mattress Topper - Rarely used. \$50. Cal King size Viscoelastic (Memory) Foam Mattress Pad. 925-296-0084
Oak Dining Room Set. \$650. With 6 chairs and full Hutch. 925-362-8796
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White Kenmore Side-by-Side refrigerator. \$200 OBO. 925-648-0950
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Mohair blankets. \$85-90. Full/ queen, tan, light blue, dusty pink and blue, washable. 925-447-8415
Moving Sale. Saturday, March 17, from 9 a.m.–2 p.m. Call for specifics and Livermore address. 925-449-3488
Redwood Play Structure. \$25. (925)455-4598
Rolling Measuring Tape - Brand

New. \$20. 925-648-0671
Storage Pedestal. \$35 each. 925-640-5469
Wacker Rammer. \$1,000. 2 Cycle - Just serviced. 510-773-1787
Weston Fruit & Wine Press. \$100. 209-599-4216
Wheelbarrow. \$40. contractor size. 925-735-6002
MOTORCYCLES.
Yamaha 400 ATV. \$3000. ‘96 Grizzly 400cc. 484-3943
1972 Kawasaki F7. \$100. 209-824-2177
1992 Honda 750 Nighthawk. best offer. 925-443-3980
2001 Honda 400 EX ATV. \$2,800. 925-525-5874
2002 Suzuki 1200S Bandit. \$4,000 OBO. 925-606-6515
2003 Polaris Predator. \$4,000 obo. 209-825-6311
2006 Aprilia Scarabeo Motorscooter. \$4,300. 925 373-3305
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1988 Harley Davidson Softail Custom, 21,000 original miles, \$10,500. 925-570-0259
Yamaha 2003 YZ 250f. \$3,250. 925-699-6064
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Room for rent, 2 miles from LLNL.

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1999 Ford truck. excellent condition. Extras. 925-735-7002
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Truckee Home. 3 BR-2 BATH, fully furnished Truckee home in forest setting. 925-784-0245
WANTED
Dryer. in good working condition. 209-499-0638
Little Tikes climbing structures. 209-607-6009
National Anthem Auditions will be held on Saturday, March 31 for the opportunity to sing the anthem at the Livermore Rodeo on June 9.925-449-0865
Road bike for daughter 52-54cm. 925-455-8006



Meet future scientists at TVSEF

All Lab employees are invited and encouraged to drop in to chat with participating students at the Tri-Valley Science and Engineering Fair from 1-2 p.m. on Wednesday, March 28. The annual competition, now in its 11th year and sponsored by LLNL, will be held at the Robert Livermore Community Center, 4444 East Ave., just minutes away from the Lab, with ample parking available. Check out this year’s hot

projects. Learn what future scientists are working on. Students are excited about their research and anxious to share their findings. Spending an hour with budding scientists is an important outreach of your dedication to inspire young people. You might meet the next Marie Curie or Albert Einstein. For more information about the Tri-Valley Science and Engineering Fair go to the web at <http://tvsef.llnl.gov/>.

Leave statements now on the Web

Chief Financial Officer Linda Rakow will distribute a letter today announcing the new self-service capability allowing employees to view monthly leave statements and vacation and sick leave history through the Livermore Administrative People Information System, or LAPIS.

With the release of this new feature, employees will no longer receive paper leave statements from the Chief Financial Officer (CFO) Directorate. The last paper statements issued from the CFO are those for the month ending Feb. 28. Employees who would like a hard copy may print leave statements from their computers.

Employees who do not have computers may view and print their leave statements and history from

one of the public-use workstations (kiosks) located around the Laboratory. Kiosks may be found at the following locations: Payroll Lobby, Bldg. 314; Benefits Lobby, Bldg. 571; Human Resources, Bldg. 571, Room 2239; Training Facility, Trailer 1879, Room 1000; and the Main Library, Trailer 4727.

Employees may view and print their leave statements and up to two years of vacation and sick leave history. To access this capability, go to the existing self-service menu in the LAPIS application by simply typing LAPIS in your browser window, or going to the following link: <https://psapp.llnl.gov/psp/ps89prd/?cmd=login>

Questions may be directed to Adalia Loder in Payroll at 3-0911 or e-mail loder2@llnl.gov.

<h1>NEWSLINE</h1> <p>Media & Communications manager: Lynda Seaver, 3-3103 Newsline editor: Don Johnston, 3-4902 Contributing writers: Bob Hirschfeld, 2-2379; Linda Lucchetti, 2-5815; Charles Osolin, 2-8367; David Schwoegler, 2-6900; Anne M. Stark, 2-9799; Stephen Wampler, 3-3107.</p> <p>For an extended list of Lab beats and contacts, see http://www.llnl.gov/pao/contact/</p>	<p>Newsline is published bi-weekly by the Public Affairs Office, Lawrence Livermore National Laboratory (LLNL), for Laboratory employees and retirees.</p> <p>Photographer: Jacqueline McBride Designers: Julie Korhummel, 2-9709; Kathleen Smith, 3-4769 Distribution: Mail Services at LLNL</p> <p>Public Affairs Office: L-797 (Trailer 6527), LLNL, P.O. Box 808, Livermore, CA 94551-0808 Telephone: (925) 422-4599; Fax: (925) 422-9291 e-mail: newsline@llnl.gov or newsonline@llnl.gov Web site: http://www.llnl.gov/pao/</p>
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PEOPLE NEWS

IN MEMORIAM

Garret Boer

Garret Boer, a Lab retiree who worked as a computer programmer, died Feb. 28 in Livermore after battling cancer for a decade. He was 79.

Boer was raised in Escondido and served in the U.S. Navy from 1945-1948. He received a bachelor’s degree in mathematics from UC Berkeley, where he performed in a number of plays and later served as staff technical supervisor for the dramatic art department. There he met his wife Joan.

In 1956 he began a long career as a computer programmer at the Lab and helped design operating systems for the Lab’s computers, the largest of their day. He eventually specialized in data storage and was the first group leader when Storage became a separate group. As new storage devices replaced old and the data had to be moved, Boer wrote the necessary programs for the operations.

An actor, director and all-around champion of community theater,

Boer was an early member of ‘Cask and Mask,’ the Livermore Valley theater group that recently celebrated its 50th anniversary.

He enjoyed traveling and visited all seven continents. He also enjoyed houseboating with family and friends on Lake Shasta and the Delta, crossword puzzles, bridge games and annual trips to Ashland’s Oregon Shakespeare Festival.

He is survived by his wife of 50 years, Joan; daughter Anne Rebecca Davies of Flower Mound, Texas; sons Bruce Boer of Orinda and Nicholas Boer of Livermore; sister Rosemary Ekins of Reno, Nev.; four grandchildren; and several nieces and nephews.

A service to celebrate his life will be held at 2 p.m. Saturday, March 24, at the Bothwell Arts Center, Eighth and H streets, Livermore. The family suggests donations in his name to the center. Checks may be made to Bothwell Arts Center and mailed to 2222 Second St., Suite 18, Livermore, CA 94550.

Gill Cruz

Gill Cruz, a longtime Lab employee, died Feb. 20. He was 60.

Cruz worked on AVLIS during the Demo 85 competition and also on the SIS Project.

A celebration of his life was held

at the Fenestra Winery in Livermore on Feb. 25.

Donations may be made in his name to Hope Hospice of Dublin, or to the Las Positas College Foundation.

Charles Newby

Charles “Chuck” Newby, of Las Vegas, a Lab retiree, died Feb. 11. He was 74.

Born July 19, 1932 in Phoenix, he entered the U.S. Navy and served in the Korean War. After his service, he resided in San Francisco where he attended Heald Business College.

Prior to completing his schooling, Newby was recruited by LLNL to work in the early weapons testing program in the South Pacific. He continued a successful career as a weapons testing expert for more than 35 years before retiring from the Lab in 1990.

He was active in the local Las Vegas real estate community for many years. He enjoyed many outdoor activities including sailing, biking, snowmobiling and golfing. He was commodore of the Nevada Sailing Club at Lake Mead numerous times and director of the bridge club in Henderson, Nev.

He is survived by his wife Carole Newby; son, Donald Newby; daughter, Jill Colquitt; and four grandchildren. Donations may be made in Newby’s name to the Michael J. Fox Foundation for Parkinson’s Research.

SCIENCE NEWS

A question of RRW

Editor's note: In the wake of the Reliable Replacement Warhead announcement on March 2, co-workers, the news media and members of the public have asked numerous questions about this warhead. Here are answers to FAQs from the Lab's RRW design team leader, Hank O'Brien.

What will be the role of Los Alamos National Laboratory?

LANL will play several very important roles as RRW goes forward. Los Alamos is the production agency for any plutonium pits to be developed and produced for RRW. They will conduct peer review at an unprecedented level of rigor and detail. We expect to be using some of their test facility capabilities.

Also, there will be a new level of collaboration on the RRW design development. While Livermore has the lead, there are features of the LANL design that will be examined for inclusion into this laboratory's baseline design and proposed development program. We will seek to engage LANL to assure the best possible RRW program, and to exercise and maintain the country's critical skills in nuclear weapons design and engineering.

Did the Livermore and Los Alamos design teams have access to the same resources during the design competition?

Both teams had the benefit of the superior science across the nuclear weapons complex. Both teams had access to the fastest supercomputers and a comprehensive historical nuclear test base. Both teams could build on the

scientific successes of the Stockpile Stewardship program. Both teams were supported by NNSA production facilities. As a result, both teams produced outstanding designs that met all of the RRW requirements.

Will the Livermore RRW design provide the basis for other submarine-launched ballistic missile systems or other future RRWs?

The current RRW1 is the planned replacement for the W76 warhead in the Navy's submarine-launched missile systems. Future RRW designs will likely result from competition like the one we just completed. We hope that our contributions continue to pay off in future iterations, but this is not our decision.

Why is RRW considered a "green" weapon?

The RRW design and manufacturing process reduces or eliminates the usage of many Cold-War-era hazardous materials and processes. This reduces hazards to workers, military service people, and also minimizes the impact on the environment caused by waste and byproducts.

What were the biggest technical challenges in designing the RRW?

The technical challenges fell into three main areas:

1. Improving the surety features, especially use control, using present-day technologies that weren't



Associate Director Bruce Goodwin addresses DNT employees after LLNL was awarded the RRW design project.

in use when the current stockpile was designed and produced.

2. Compatibility testing new materials that replaced traditional or historical parts, as part of creating the weapon's "green" character.

3. Working with newer, modern systems that have been individually developed, tested and deployed elsewhere, but not in aggregate.

Why has the term "luxury" been applied to the flexibility in the size and weight of the RRW?

The build-down of the U.S. nuclear stockpile means we will have fewer nuclear weapons, and fewer numbers of delivery systems. Cold War deterrence and weapon parity mandated maximizing and squeezing multiple warheads into cramped quarters in the delivery vehicle.

But post-Cold-War deterrence changes this design driver. The number of warheads is coming down faster than the number of delivery systems. So designers have the luxury of designing fewer warheads per delivery vehicle. Bigger and heavier warheads translate to improved safety and surety, wider operating margins and improved confidence, and yet make no change in military capabilities.

DDLs to discuss findings on climate change

Susan Solomon, senior scientist at the Aeronomy Laboratory at the National Oceanic and Atmospheric Administration, will discuss the key findings of the fourth assessment report from the Intergovernmental Panel on Climate Change, at 3:30 p.m., Thursday, March 29, in the Bldg. 123 auditorium.

The Intergovernmental Panel on Climate Change (IPCC) was jointly established by the World Meteorological Organization and the United Nations Environment Program to assess available information on the science of climate change and to provide assessments of interest to policymakers, scientists and the public. In



Susan Solomon

February 2007, Working Group 1 (WG1) of the IPCC released "Climate Change 2007," its fourth comprehensive assessment report on the state of understanding of the physical science basis of climate change.

In this talk, Solomon, a co-chair of IPCC WG1, will summarize key scientific findings of the report, including observed changes in the atmosphere, ocean and ice, as well as an understanding of forcing agents such as carbon dioxide and aerosol, feedback in the climate

system, attribution of observed changes to human and natural factors, and projections of future changes in coming decades and centuries.

The talk will be rebroadcast on Lab TV channel 2 at 10 a.m., 12, 2, 4 and 8 p.m. Thursday, April 5, and 4 a.m. on Friday, April 6.



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